

Height and weight charts from birth to 5 years allowing for length of gestation

For use in infant welfare clinics

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Tanner, J. M., and Whitehouse, R. H. (1973). *Archives of Disease in Childhood*, **48**, 786. **Height and weight charts from birth to 5 years allowing for length of gestation: for use in infant welfare clinics.** Charts enlarging the birth to 5-year section of the standard British height and weight charts and allowing for plotting at the correct length of gestation are described and illustrated.

The standard growth charts for height and weight (Tanner, Whitehouse, and Takaishi, 1966) which cover the whole age range from birth to 19 years do not give enough space for accurate and repeated plotting in the first 2 years after birth, a facility especially required in infant welfare clinics. We have therefore redrawn the portion of the charts from birth to 2 years as shown in Fig. 1 and 2, and added, on a less extended scale, the centiles from 2 to 5 years.

Gairdner and Pearson (1971) have already published a chart for length, weight, and head circumference up to 2 years which achieves the same objective by using a logarithmic scale for age. It may be useful, however, to offer an alternative to those clinicians who prefer an arithmetic age scale, with more vertical space for plotting, and with the full set of centiles rather than only the 10th, 50th, and 90th as given in the Gairdner and Pearson charts. Both charts are based on the same weight data from 32 weeks to 2 years and the same length data from 40 weeks to 2 years. The Gairdner and Pearson chart starts at 28 weeks, but is based on scanty data from 28 to 32 weeks.

Like Gairdner and Pearson, we have provided a way of plotting the weights and lengths of preterm babies. A baby born at 32 weeks' gestation should not be plotted 12 weeks after birth at the point which is 12 weeks on a scale starting at 40-week birth. Using the notion of conceptional age, he should be plotted at 12 less the 8 weeks (40-32), by which he was early born. A baby born at 32 weeks, who 12

weeks later is exactly average in weight for conceptional age, appears erroneously to be well below the 3rd centile if plotted at 12 weeks after a 40-week birth.

The measurement of supine length at birth and in infancy is not yet routine in the U.K. chiefly because unreliability of technique has rendered the values suspect. The recent introduction of the Holtain neonatometer (Davies and Holding, 1972) has removed this difficulty and makes the absolute (though, of course, not the relative) error in measuring preterm and term babies about equal to that in measuring children's lengths. Measurements of length are of importance in the early diagnosis of growth hormone deficiency (though weight is not, as these children have excessive fat). They might also be an aid in detecting early hypothyroidism (von Harnack *et al.*, 1972). The preterm lengths given in Fig. 1 have been derived from Swedish sources (see Tanner and Thomson, 1970), but will be replaced by U.K. data when studies with the neonatometer are completed.

There are separate charts for boys and girls (only boys given in Fig. 1 and 2). On the front of the chart notes on the use of the charts are given, and on the back are illustrations and instructions on the technique of measuring supine length and standing height, with a table of decimal age. For plotting height and weight at a given age either decimal age or the less accurate years and months may be used, but in plotting velocity and rate of growth (using the 1966 velocity charts at present) the use of decimals makes the calculations much easier.

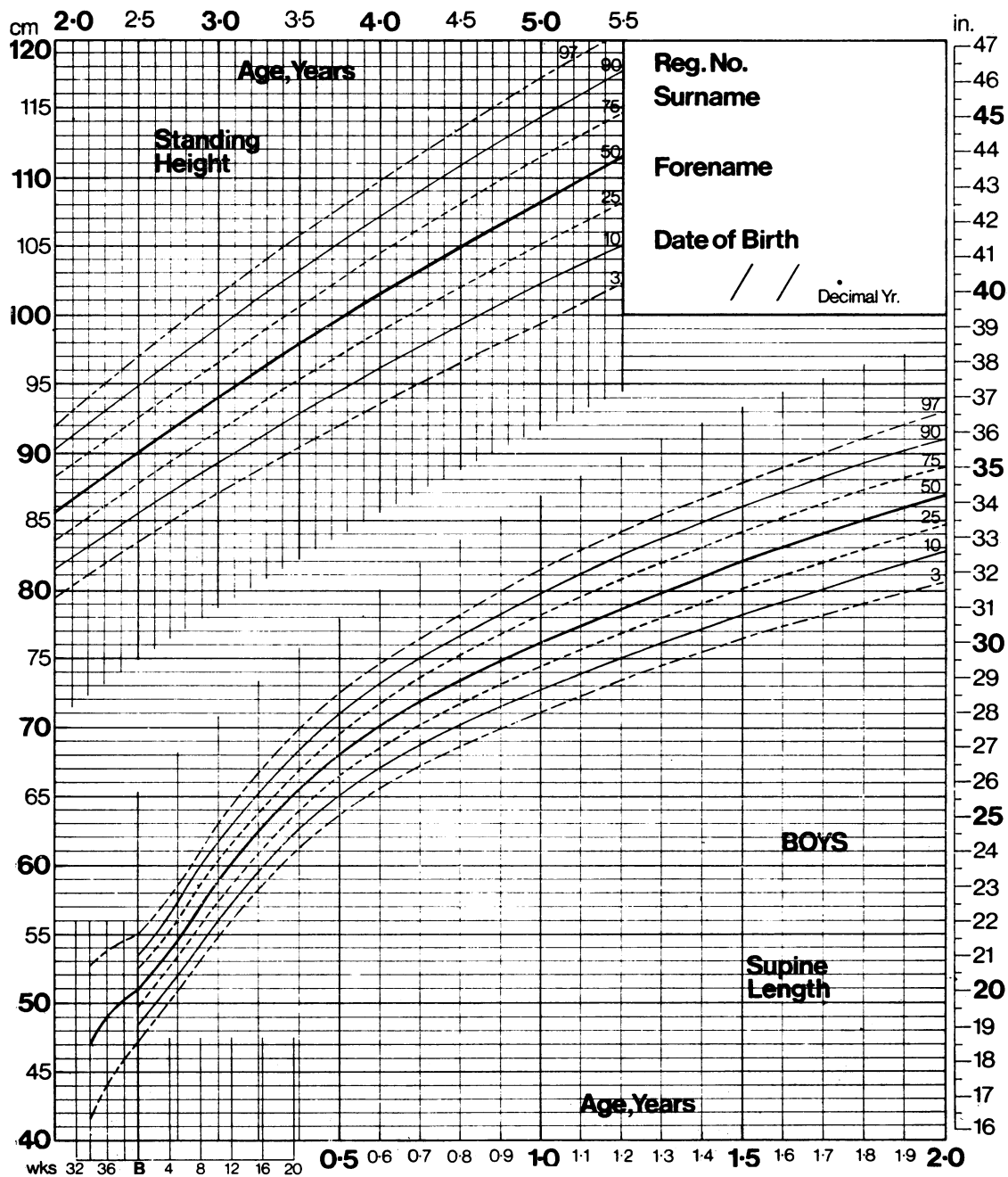


FIG. 1.—Birth to 5 years length and height chart, boys.

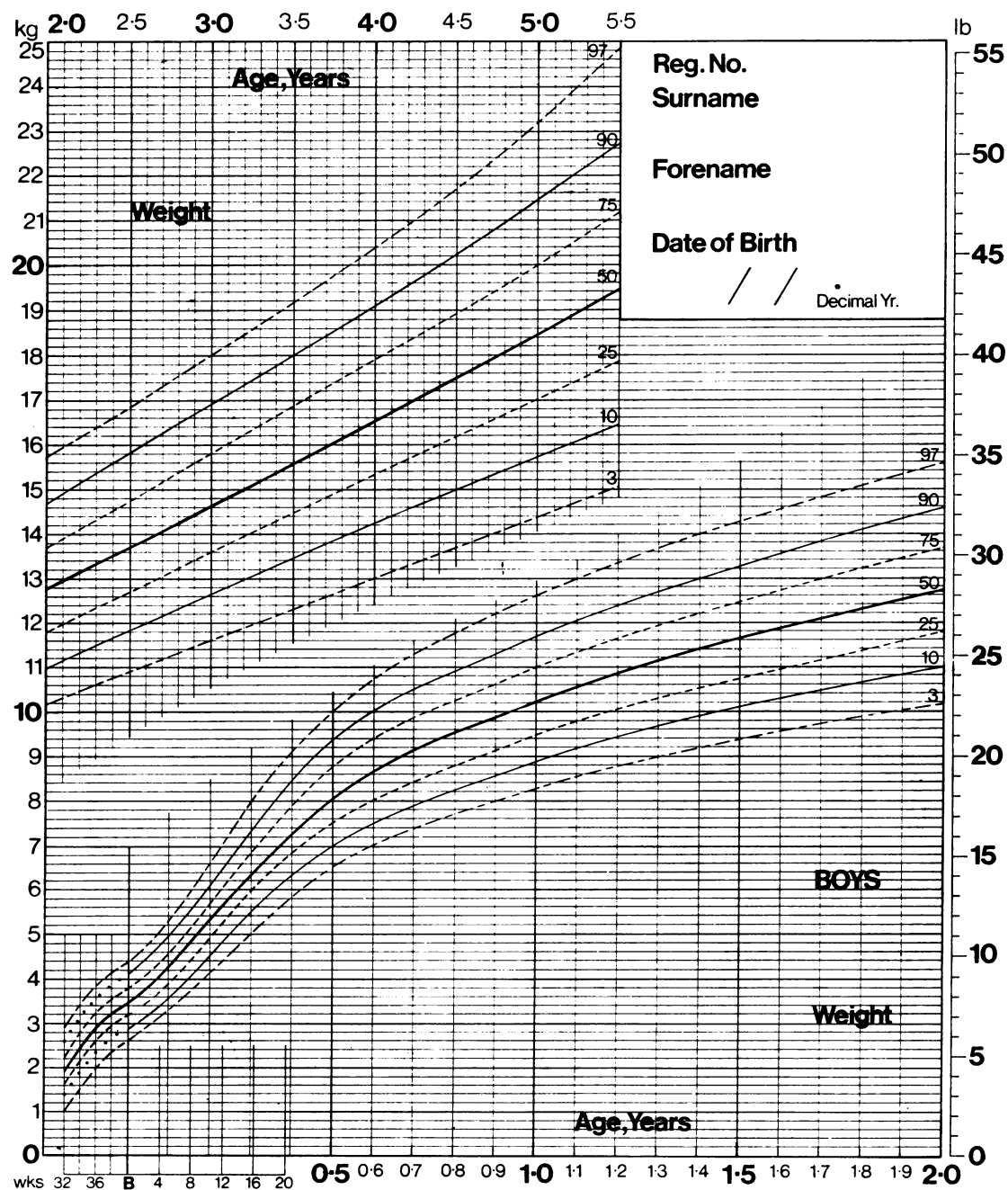


FIG. 2.—Birth to 5 years weight chart, boys.

The charts are obtainable from Creaseys, Bull Plain, Hertford, Herts. (Refs. SHWB28, 29).

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